

STATE OF TENNESSEE DEPARTMENT OF HEALTH ENVIRONMENTAL LABORATORIES

TDH: Lab Services JRL Lab Services - Jackson Regional Lab Jackson, TN 38301 731-426-0686

TDH: Lab Services KRL Lab Services - Knoxville Regional Lab Knoxville, TN 37920 865-549-5201 TDH: Lab Services NCL Lab Services - Nashville Central Lab Nashville, TN 37243 615-262-6300

Sent To:

Geoff Klein

TDEC-DWS 200 East Race St Knoxville, TN 37763 Lab ID: N00004494 Nashville Central Laboratory

Sampling Agency: TDEC: Division of Water Supply

Billing Code: 3

327.39-12

This is to certify that the following results were determined using good laboratory pratices and in accordance with federal or state approved methodologies.

Analytical Supervisor

N00004494001

Project Name:

Sample Description:

KINGSTON WTP

Sampler Project Name: RAW

Project Site No.:

Station No.:

Date/Time Collected:

05/11/2009 09:30

Sampler's Name:

GOEFF KLEIN

County: Sample Matrix: **ROANE - 73**

Water

EFO:

Knoxville

Sampling Agency:

TDEC-DWS

Billing Code:

327.39-12

Send Report To: Agency Invoiced:

TDEC-DWS TDEC-DWS

Priority Date:

Date/Time Received:

05/11/2009

12:15

Received By:

P Singh

TEST: Alkalinity, Total	METHOD: EPA 310.2					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	58	mg/L	3.8	10	M Chen	5/12/2009

Field Determinations

Chlorine, residual:

Dissolved Oxygen:

CFS

Conductivity:

Temperature:

Other:

Flow:

TEST: Hardness, Calcium	ME.					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	46	mg/L	0.7	1	M Chen	5/12/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00004494002

Project Name:

Sample Description:

KINGSTON WTP

Sampler Project Name: FINISH

Project Site No.:

Station No.:

Date/Time Collected:

05/11/2009 09:35

Sampler's Name:

GEOFF KLEIN

County: Sample Matrix:

ROANE - 73

EFO:

Water

Sampling Agency:

Knoxville

Billing Code:

TDEC-DWS 327.39-12

Send Report To:

Date/Time Received:

TDEC-DWS

Agency Invoiced: Priority Date:

05/11/2009

12:15

Received By:

P Singh

TEST: Alkalinity, Total	ME:	METHOD: EPA 310.2				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	58	mġ/L	3.8	10	M Chen	5/12/2009

Field Determinations

Chlorine, residual:

Dissolved Oxygen:

CFS

Conductivity:

Temperature:

pH:

Other:

Flow:

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	46	mg/L	0.7	1	M Chen	5/12/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00004494003

Project Name:

Sample Description:

ROCKWOOD WTP

Sampler Project Name: FINISH

Project Site No.:

Station No.:

Date/Time Collected:

05/11/2009 10:15

Sampler's Name:

GEOFF KLEIN

County: Sample Matrix:

ROANE - 73

Sample EFO:

Water

Sampling Agency:

Knoxville TDEC-DWS

Billing Code: Send Report To: 327.39-12 TDEC-DWS TDEC-DWS

Agency Invoiced: Priority Date:

Date/Time Received:

05/11/2009

12:15

Received By:

P Singh

TEST: Alkalinity, Total	MET					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	61	mg/L	3.8	10	M Chen	5/12/2009

Field Determinations

Chlorine, residual:

Dissolved Oxygen:

CFS

Conductivity:

Temperature:

:Hq

Other:

Flow:

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D					· · · · · · · · · · · · · · · · · · ·
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	50	mg/L	0.7	1	M Chen	5/12/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00004494004

Project Name:

Sample Description:

ROCKWOOD WTP

Sampler Project Name: RAW

Project Site No.:

Station No.:

Date/Time Collected:

05/11/2009 10:20

Sampler's Name:

GEOFF KLEIN

County: Sample Matrix: **ROANE - 73**

EFO:

Water

Knoxville

Sampling Agency: **Billing Code:**

TDEC-DWS 327.39-12

Send Report To: Agency Invoiced: **TDEC-DWS** TDEC-DWS

Priority Date:

Date/Time Received:

05/11/2009

12:15

Received By:

P Singh

Field Determinations

pH:

Chlorine, residual: Conductivity:

Temperature:

Dissolved Oxygen:

Other:

Flow:

CFS

TEST: Alkalinity, Total	ME	METHOD: EPA 310.2				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Total Alkalinity	74	mg/L	3.8	10	M Chen	5/12/2009

TEST: Hardness, Calcium	METHOD: SM 3500-Ca D				W-7/-11	
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Calcium hardness	52	mg/L	0.7	1	M Chen	5/12/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit



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Sent To:

Geoff Klein

TDEC-DWS 200 East Race St Knoxville, TN 37763 **Lab ID:** N00004494 Nashville Central Laboratory

Sampling Agency: TDEC: Division of Water Supply

Billing Code: 327.39-12

This is to certify that the following results were determined using good laboratory pratices and in accordance with federal or state approved methodologies.

Analytical Supervisor

N00004494001

Project Name:

Sample Description:

KINGSTON WTP

Sampler Project Name: RAW

Project Site No.: Station No.:

Date/Time Collected:

05/11/2009 09:30

Sampler's Name:

GOEFF KLEIN

County: Sample Matrix:

ROANE - 73

Sample Watr

Water

Sampling Agency:

Knoxville TDEC-DWS 327.39-12

Billing Code: Send Report To: Agency Invoiced:

TDEC-DWS

Priority Date:

Date/Time Received:

05/11/2009 12:15

Received By:

P Singh

Field Determinations

pH:

Chlorine, residual:
Conductivity:
Temperature:

Dissolved Oxygen:

Other:

Flow:

CFS

TEST: Digestion Metals	MET		, , , , ,			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	05/12/2009				S Ufegbu	5/12/2009

TEST: ICP-MS	ME.	METHOD: EPA 200.8				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	Ų	μg/L	0.93	5	A Wilson	5/12/2009
Barium	18	μg/L	2.5	5	A Wilson	5/12/2009
Beryllium	U	· μg/L	0.11	1	A Wilson	5/12/2009
Cadmium	U	μg/L	0.41	1	A Wilson	5/12/2009
Chromium	U	μg/L	2.0	5	A Wilson	5/12/2009
Cobalt	0.18J	μg/L	0.04	1	A Wilson	5/12/2009
Lead	0.30J	μg/L	0.10	1	A Wilson	5/12/2009
Manganese	23	μg/L	0.42	1	A Wilson	5/12/2009
Selenium	U	μg/L	1.3	5	A Wilson	5/12/2009
Thallium	0.062J	μg/L	0.03	1	A Wilson	5/12/2009
Vanadium	U _.	μg/L	3.4	5	A Wilson	5/12/2009

TEST: Mercury	ME.					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.029	0.2	A Bass	5/12/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00004494002

Project Name:

Sample Description:

KINGSTON WTP

Sampler Project Name: FINISH

Project Site No.:

Station No.:

Date/Time Collected:

05/11/2009 09:35

Sampler's Name:

GEOFF KLEIN

County: Sample Matrix:

ROANE - 73

Sample Ma

Water

Sampling Agency:

Knoxville TDEC-DWS

Billing Code:

327.39-12

Send Report To: Agency Invoiced: TDEC-DWS TDEC-DWS

Priority Date:

Date/Time Received:

05/11/2009

12:15

RESULT 05/12/2009

Received By:

Digestion Metals

P Singh

TEST: Digestion Metals	METHOD: EPA 200.2						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	

Field Determinations

Chlorine, residual:

Dissolved Oxygen:

CFS

5/12/2009

S Ufegbu

Conductivity:

Temperature:

pH:

Other:

Flow:

TEST: ICP-MS	ME ⁻	METHOD: EPA 200.8				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	μg/L	0.93	5	A Wilson	5/12/2009
Barium	17	μg/L	2.5	5	A Wilson	5/12/2009
Beryllium	U	μg/L	0.11	1	A Wilson	5/12/2009
Cadmium	U	μg/L	0.41	1	A Wilson	5/12/2009
Chromium	υ	μg/L	2.0	5	A Wilson	5/12/2009
Cobalt	0.067J	μg/L	0.04	1	A Wilson	5/12/2009
Lead	U	μg/L	0.10	1	A Wilson	5/12/2009
Manganese	3.2	μg/L	0.42	1	A Wilson	5/12/2009
Selenium	U	μg/L	1.3	5	A Wilson	5/12/2009
Thallium	U	μg/L	0.03	1	A Wilson	5/12/2009
Vanadium	U	μg/L	3.4	5	A Wilson	5/12/2009

TEST: Mercury	METHOD: EPA 245.1						
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE	
Mercury	U .	μg/L	0.029	0.2	A Bass	5/12/2009	

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00004494003

Project Name:

Sample Description:

ROCKWOOD WTP

Sampler Project Name: FINISH

Project Site No.: Station No.:

Date/Time Collected: 05/11/2009 10:15

Sampler's Name:

GEOFF KLEIN

County: Sample Matrix: ROANE - 73

EFO:

Water Knoxville

Sampling Agency: **Billing Code:**

TDEC-DWS 327.39-12

Send Report To: Agency Invoiced:

TDEC-DWS TDEC-DWS

Priority Date:

Date/Time Received:

05/11/2009

12:15

Received By:

P Singh

Field Determinations

pH:

Chlorine, residual: Conductivity: Temperature: **Dissolved Oxygen:**

Other:

Flow:

CFS

TEST: Digestion Metals	igestion Metals METHOD: EPA 200.2		0.2				
ANALYTE	RESULT	UNITS	MDL	MQL ANALYZED BY:		DATE	
Digestion Metals	05/12/2009				S Ufegbu	5/12/2009	

TEST: ICP-MS	ME ⁻	THOD: EPA 20	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	μg/L	0.93	- 5	A Wilson	5/12/2009
Barium	23	μg/L	2.5	5	A Wilson	5/12/2009
Beryllium	U	μg/L	0.11	1	A Wilson	5/12/2009
Cadmium	U	μg/L	0.41	1	A Wilson	5/12/2009
Chromium	U	μg/L	2.0	5	A Wilson	5/12/2009
Cobalt	0.068J	μg/L	0.04	1	A Wilson	5/12/2009
Lead	U	μg/L	0.10	1	A Wilson	5/12/2009
Manganese	3.9	μg/L	0.42	1	A Wilson	5/12/2009
Selenium	U	μg/L	1.3	5	A Wilson	5/12/2009
Thallium	U	μg/L	0.03	1	A Wilson	5/12/2009
Vanadium	U	μg/L	3.4	5	A Wilson	5/12/2009

TEST: Mercury	MET	ΓHOD: EPA 24				
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.029	0.2	A Bass	5/12/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit

N00004494004

Project Name:

Sample Description:

ROCKWOOD WTP

Sampler Project Name: RAW

Project Site No.: Station No.:

Date/Time Collected:

05/11/2009 10:20

Sampler's Name:

GEOFF KLEIN

County: Sample Matrix:

ROANE - 73

EFO:

Water Knoxville

Sampling Agency: Billing Code:

TDEC-DWS 327.39-12

Send Report To:
Agency Invoiced:

TDEC-DWS
TDEC-DWS

Priority Date:

Date/Time Received:

05/11/2009

12:15

Received By:

P Singh

Field Determinations

pH:

Chlorine, residual: Conductivity: Temperature: Dissolved Oxygen:

Other:

Flow:

CFS

TEST: Digestion Metals	METHOD: EPA 200.2					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Digestion Metals	05/12/2009				S Ufegbu	5/12/2009

TEST: ICP-MS	MET	THOD: EPA 20	0.8			
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Arsenic	U	μg/L	0.93	5	A Wilson	5/12/2009
Barium	25	μg/L	2.5	5	A Wilson	5/12/2009
Beryllium	U	μg/L	0.11	1	A Wilson	5/12/2009
Cadmium	U	μg/L	0.41	1	A Wilson	5/12/2009
Chromium	U	μg/L	2.0	- 5	A Wilson	5/12/2009
Cobalt	0.13J	μg/L	0.04	1	A Wilson	5/12/2009
Lead	0.36J	μg/L	0.10	1	A Wilson	5/12/2009
Manganese	22	μg/L	0.42	1	A Wilson	5/12/2009
Selenium	, U	μg/L	1.3	5	A Wilson	5/12/2009
Thallium	U	μg/L	0.03	1	A Wilson	5/12/2009
Vanadium	U	μg/L	3.4	5	A Wilson	5/12/2009

TEST: Mercury	METHOD: EPA 245.1					
ANALYTE	RESULT	UNITS	MDL	MQL	ANALYZED BY:	DATE
Mercury	U	μg/L	0.029	0.2	A Bass	5/12/2009

J - Estimated value between MDL and MQL

MDL - Method Detection Limit

MQL - Method Quantitation Limit